

What is claimed:

- 1 1. A head suspension assembly comprising:
2 a suspension arm having a trench formed therein; and
3 a membrane positioned on the suspension arm and adapted to support a slider
4 thereon, wherein at least a portion of the membrane is positioned adjacent to the trench.

- 1 2. A head suspension assembly as in claim 1, wherein the suspension arm and
2 the membrane are formed from materials having different compositions.

- 1 3. A head suspension assembly as in claim 2, wherein the suspension arm is
2 formed from silicon.

- 1 4. A head suspension assembly as in claim 2, wherein the membrane is formed
2 from a material including carbon.

- 1 5. A head suspension assembly as in claim 1, wherein the membrane comprises
2 a glassy carbon material.

- 1 6. A head suspension assembly as in claim 1, wherein the suspension arm is
2 formed from a silicon wafer and the membrane comprises a glassy carbon material.

- 1 7. A head suspension assembly as in claim 1, further comprising a slider
2 positioned on the membrane over the trench.

- 1 8. A head suspension assembly as in claim 1, wherein the membrane extends
2 across the trench.

- 1 9. A head suspension assembly as in claim 1, wherein the membrane is formed
2 from an electrically conductive material.

1 10. A head suspension assembly as in claim 7, further comprising at least one
2 wiring line electrically coupled to slider positioned on the membrane, wherein at least a
3 portion of one wiring line is positioned so that the wiring line extends at least one of (a) into
4 the suspension arm to a depth, and (b) on the surface of the suspension arm.

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2 11. A head suspension assembly comprising:
3 a suspension arm having a opening extending a distance therein; and
4 a membrane positioned on the suspension arm and adapted to support a slider
5 thereon, wherein a portion of the membrane is positioned over the opening.

1 12. A head suspension assembly as in claim 11, wherein the suspension arm is
2 formed from silicon.

1 13. A head suspension assembly as in claim 12, wherein the membrane is formed
2 from a material including carbon.

1 14. A head suspension assembly as in claim 11, wherein the membrane
2 comprises a glassy carbon material.

1 15. A head suspension assembly as in claim 14, further comprising a slider
2 positioned on the glassy carbon material over the opening.

1 16. A disk drive for reading and writing disks, the disk drive including a head
2 suspension assembly, the disk drive comprising:
3 at least one disk;
4 a rotatable hub for mounting the disk;
5 a read/write head adapted to read from and write to the disk;
6 a slider onto which the read/write head is provided; and

1 a suspension assembly adapted to support the slider, the suspension assembly including a
2 support arm defining a cavity, and a membrane positioned on the support arm, wherein at
3 least a portion of the membrane is positioned adjacent the cavity.

1 17. A disk drive as in claim 16, wherein the membrane comprises a glassy carbon
2 material and the support arm comprises silicon.

1 18. A disk drive as in claim 16, wherein the member extends over a portion of
2 the cavity.